

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TINKU ACHARYA, BHARGAB B. BHATTACHARYA,
ARIJIT BISHNU, MALAY K. KUNDU, and CHIVUKULA A. MURTHY

Appeal No. 2005-2067
Application 09/722,982

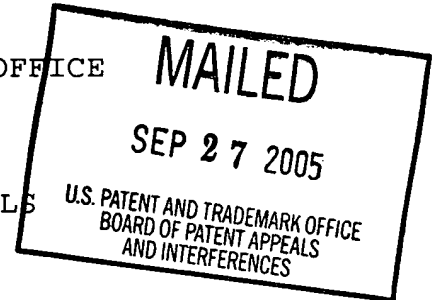
ON BRIEF

Before JERRY SMITH, GROSS and SAADAT, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-3, 7, 8 and 10-14. Pending claims 4-6, 9, 15 and 16 have been indicated by the examiner to contain allowable subject matter.



The disclosed invention pertains to a method and apparatus for computing the Euler number of a binary image.

Representative claim 1 is reproduced as follows:

1. A method comprising:

identifying a representation of a binary image in a pixel matrix, wherein the pixel matrix comprises a plurality of portions;

computing the number of runs for a first portion of the pixel matrix, wherein a run is a maximal sequence of pixels having a predetermined value in the first portion;

computing the number of neighboring runs between the first portion and a second portion of the pixel matrix, wherein a neighboring run is a run in which at least one pixel of the run is in the neighborhood of a run in an adjacent portion; and

computing the Euler number from the number of runs and the number of neighboring runs.

The examiner relies on the following reference:

S. DiZenko et al. (DiZenko), "Run-Based Algorithms for Binary Image Analysis and Processing," IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 18, No. 1, January 1996, pages 83-89.

Claims 1-3, 7, 8 and 10-14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by DiZenko.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of anticipation relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the DiZenzo publication does not fully meet the invention as set forth in the claims on appeal. Accordingly, we reverse.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The examiner has indicated how he reads the claimed invention on the DiZenno article [action mailed January 29, 2004; incorporated into answer at page 3]. With respect to independent claims 1 and 12, which stand or fall together [brief, page 8], Appellants argue that there is no teaching in DiZenno of identifying a representation of a binary matrix in the pixel matrix wherein the Euler number of the binary image is computed. In other words, appellants argue that there is no pixel matrix based computation of the Euler number in DiZenno [brief, page 9]. The examiner responds that the binary image of DiZenno is inherently represented by a matrix of rows and columns, that is, a pixel matrix [answer, pages 3-4]. Appellants respond that there is no division of the pixel matrix of DiZenno into portions and then computing the number of neighboring runs between those portions as claimed. Appellants also argue that the way in which the Euler number is computed in DiZenno is different from what is claimed in claim 1 [reply brief, pages 1-2].

Although we do not encourage appellants to withhold material arguments related to patentability until the filing of the reply brief, as was the case here with respect to claim 1, the fact of the matter is that the examiner has entered this reply brief without further comment. We find appellants'

arguments as set forth in the reply brief to be correct. Thus, the arguments set forth in the reply brief demonstrate that the examiner has failed to address some specific features of independent claim 1. Since appellants' arguments in the reply brief are persuasive that the examiner has failed to establish a prima facie case of anticipation, and since these arguments have gone un rebutted by the examiner, we do not sustain the examiner's rejection of independent claims 1 and 12 or of any of the claims which depend therefrom.

With respect to independent claim 7 which is argued separately, appellants argue that since DiZenzo does not teach the use of portions of a pixel matrix, the run number in the number of runs in a particular portion of the pixel matrix is not taught by DiZenzo as well as the neighboring runs computation [brief, page 10]. For reasons not clear to us, the examiner responds that the arguments with respect to claim 7 are moot [answer, page 4].

We will not sustain the examiner's rejection of independent claim 7 or of any of the claims which depend therefrom. We agree with appellants that the examiner has failed to identify first and second portions of a pixel matrix as well as a neighboring run processor which computes neighboring runs

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